RECEIVED
CENTRAL FAX CENTER
SEP 12 2006

AMENDMENT SPECIFICATIONS

Please amend paragraph [00331] as follows:

-- [00331] The general structure of the network depicted in FIG. 40 may be implemented via a Knowm™ enabled physical neural network. FIG. 41 illustrates a schematic diagram of a physical neural network 4100, which can be implemented in accordance with an alternative embodiment of the present invention. Physical neural network 4100 of FIG. 41 is analogous to physical neural network 3900 of FIG. 39. Physical neural network 4100 comprises a liquid state machine of the type indicated in the aforementioned Maas et al reference. --

Please amend paragraph [00338] as follows:

-- [00338] For example, if the desired output depicted in FIG. 43 is "low" and the actual output is "high", then the connection strength can be decreased from "high input neurons". Similarly, if the desired output is high and the actual output is low the connection strength can be increased from "high input neurons". If the desired output is high and the actual output is high, then no action is required. Similarly, if the desired output is low and the actual output is low, then no action is required. In order to increase the connection strength, an increased field gradient can be applied across the connection gap (i.e., containing nanoparticles in solution) or the frequency can be altered across the connections thereof, whether "up" or "down". To weaken the connection strength, the connection(s) can be charged by raising the pre- and post-synaptic electrodes to a high voltage. Because the dielectrophoretic ~~dieltrophoretic~~ force responsible for particle chaining is frequency-dependant, the electrical frequency across the pre- and post-synaptic electrode can

also be altered in order to weaken the connection strength. Thus, amplifiers 4326 and 4324 can be regarded as a general mechanism to provide a feedback signal, either through a steady-state voltage signal or an increased or decreased frequency. --